

PAYMENT DISTRIBUTION METHOD FOR ONLINE PRODUCT/SERVICE  
PROVIDERS

5    The present invention relates to a payment distribution method for distributing payment to product and service providers based on a fixed fee paid by each user over a certain period.

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BACKGROUND OF THE INVENTION

After years of free access, Internet users have become too spoiled to pay for content or any Internet services. They will look for other free web sites once a site starts to charge for its content. Due to stiff competition and the need for advertisement revenue, many web sites are still offering free contents painfully. Web sites which started paid access made the wrong assumption that, one day almost all web sites will become fee-based and users will be willing to pay. However, if a user were to pay for every web site they frequently visit, the cost will be ridiculously high and the inconveniences incurred will fend off users. Even users who are willing to pay will only pay for a few sites that they find absolutely essential, and there are not many "essential" sites around. Hence, free and fee-based content providers will ultimately fail to generate enough profit to survive. Internet users will in turn lose most of the conveniences and benefits they currently enjoy.

The invention seeks to mitigate or at least alleviate such a problem by providing a distributive payment method that allows a user to obtain unlimited access to products and

services from multiple providers based on a fixed payment.

The invention aims to offer a service to allow access to a large number of product/service providers with a single  
5 low fee per user, thereby stimulating a large number of users to pay for online contents (products) and services. The object is primarily to ease online content providers' struggle to acquire and keep paid users and to encourage online users who are willing to pay to obtain contents  
10 and services from a very large number of providers, at a low fixed fee. The succeeding objective is to provide a very profitable and price-worthy environment for providers and users.

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#### SUMMARY OF THE INVENTION

According to the invention, there is provided a payment distribution method for distributing payment to a  
20 plurality of product/service providers of a predetermined fee paid by a user using their products/services by means of a network access device on an electronic network over a predetermined billing period, comprising the steps of:

- (1) setting up a system server and running a system  
25 program on the server;
- (2) installing and running a client program on said user's network access device;
- (3) recording data of usage of said products/services by said user, the data comprising at least one of the  
30 following usage elements: size of files accessed, number of files accessed, time spent on providers' sites, duration of download processes and number of download transmissions;

(4) calculating payment distribution to those providers provided products/services to said user over the billing period by dividing the user's fee into shares among them generally according to the usage element associated with each provider in relation to the total usage element associated with all providers; and

(5) Distributing calculated payments to said providers. Preferably, step (3) comprises recording the usage data on said network access device, if said user uses said products/services bypassing the system server.

Preferably, step (3) comprises recording the usage data on the system server, if said user uses said products/services via the system server.

It is preferred that in step (3) the usage data is recorded on either one or both of the system server and the network access device, and step (3) includes consolidating the usage data recorded on the system server and the network access device to generate total usage data for calculation in step (4).

It is further preferred that in step (3) the usage data is recorded on both the system server and the network access device, and the usage data is consolidated by the network access device, and in step (4) the payment distribution is calculated by the network access device.

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It is further preferred that in step (3) the usage data is recorded on both the system server and the network access device, and the usage data is consolidated by the system server, and in step (4) the payment distribution is calculated by the system server.

Preferably, the distributed payments sum up substantially to the user's fee.

In a preferred embodiment, in step (4) the payment distribution is calculated using the follow formula:

$$P_i = \left( \frac{x_i}{X} \right) f_0 \quad \text{where} \quad \sum_{\text{all } i} \frac{x_i}{X} = 1$$

$f_0$  = Predetermined fee paid by user  
 $P_i$  = Payment for distribution to provider i  
 $x_i$  = Usage element of use by user for provider i  
 $X$  = Usage element of use by user for all providers

More preferably, the formula is generalized to:

$$P_i = \left( w_1 \frac{x_{i,1}}{X_1} + w_2 \frac{x_{i,2}}{X_2} + \dots + w_j \frac{x_{i,j}}{X_j} \right) f_0$$

$$\text{Where} \quad \sum_{\text{all } j} w_j = 1, \quad \sum_{\text{all } i} \frac{x_{i,j}}{X_j} = 1$$

$x_{i,1}$  and  $X_1$  = size of files accessed from provider i and all providers respectively  
 $x_{i,2}$  and  $X_2$  = number of files accessed from provider i and all providers respectively  
 $x_{i,3}$  and  $X_3$  = time spent on sites of provider i and all providers respectively

$x_{i,4}$  and  $X_4$  = duration of download processes from provider  $i$  and all providers respectively

5  $x_{i,5}$  and  $X_5$  = number of download transmissions from provider  $i$  and all providers respectively

$w_j$  = weighing factor ranging from 0 to 1 inclusive.

10 In a preferred embodiment, a plurality of said users are involved, with step (3) and step (4) taken for each of them, and step (4) includes subsequently integrating the calculated payments in relation to all the users.

15 More preferably, in step (4) the calculated payments are integrated by the system server, and in step (5) the payments are distributed by the system server.

20 It is preferred that in step (3) the usage data is consolidated by the network access device during a predetermined interval following the billing period.

25 It is preferred that a plurality of said users are involved, with step (3) and step (4) taken for each of them, and step (4) includes subsequently transmitting the calculated payment distributions from the network access devices to the system server for integration thereby before taking step (5).

30 It is further preferred that in step (4) the calculated payment distributions are transmitted from the network access devices to the system server over a predetermined interval following the billing period.

It is yet further preferred that in step (3) the usage data is consolidated by the network access device during the same predetermined interval as that of step (4).

5 Preferably, a plurality of said users are involved, with step (3) and step (4) taken for each of them, and step (4) includes subsequently transmitting the calculated payment distributions from the network access devices to the system server for integration thereby before taking  
10 step (5).

More preferably, in step (4) the calculated payment distributions are transmitted from the network access devices to the system server over a predetermined  
15 interval following the billing period.

Advantageously, step (5) includes neglecting some of said providers of smallest shares in the calculated payment distribution.

20 More advantageously, step (5) includes setting a maximum number of providers per payment distribution in descending order of their shares to neglect those providers in excess of the number.

25 More advantageously, step (5) includes setting a minimum cut-off share percentage to neglect those providers of shares smaller than the cut-off percentage.

30 Preferably, the payment distribution method includes the following step between step (2) and step (3):

(2A) registering each of said provider and user participating in the method and setting up an individual account therefor.

5 More preferably, the payment distribution method is set up and operated by a system operator and run by a business operator who is only responsible for taking step (2A) and step (5).

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#### BRIEF DESCRIPTION OF DRAWINGS

The invention will now be more particularly described, by way of example only, with reference to the accompanying  
15 drawings, in which:

Figure 1 is a schematic diagram showing a network connecting product/service providers, users and a system central site based on an embodiment of a payment  
20 distribution method in accordance with the invention;

Figure 2 is a schematic diagram illustrating a user connecting to a provider of Figure 1 via the central site using Method 1;  
25

Figure 3 is a schematic diagram illustrating a user connecting to a provider of Figure 1 and to the central site using Method 2;

30 Figure 2A is a schematic diagram equivalent to Figure 2, showing more users and providers;

Figure 3A is a schematic diagram equivalent to Figure 3, showing more users and providers;

Figure 4 is a schematic diagram of timeline on processing payment;

5 Figure 5 is a table representing a provider database complied by a business operator of the subject invention;

Figure 6 is a table representing a user database complied by the business operator;

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Figure 7 is a table representing a list of online users;

Figure 8 shows a usage table for a specific user;

15 Figure 9 shows a usage report built from the usage table of Figure 8;

Figure 10 shows a payment distribution table simplified from the usage report of Figure 9;

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Figure 11 shows a payment table that is integrated from the payment distribution tables of the users, for distributing payments to the providers;

25 Figure 12 is a table based on a ranking scheme for adjusting the payment distribution; and

Figure 13 is a table based on a scoring scheme for adjusting the payment distribution.

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#### DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

Referring to the drawings, there is shown a payment



distribution method embodying the invention for the provision of products/services over an electronic network, which allows a user to obtain access to multiple product and service providers for a fixed subscription fee, 5 regardless of the usage volume. The user's fee is to be distributed to the providers who granted access to the user primarily based on the usage and/or other criteria. The payment system utilising this payment method caters for a very large number of users and providers.

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The payment system is set up and operated by a system operator, whereas the payment scheme is preferably run by a business operator who is not involved in the technical operation of the system. The business operator may be a 15 financial institution who is expert in commerce. To join the scheme, both providers and users must first set up respective accounts with the business operator. Each user is required to pay the business operator a fixed subscription fee, for example on a monthly basis. The 20 business operator then passes the databases of both the providers and the users as shown in the tables of Figures 5 and 6 to the system operator for installation. Management of the providers and users, including addition and removal thereof, is handled by the business operator, 25 and the system operator updates the member lists accordingly.

The applicable environment should be a set up in the form of an electronic network, with which the providers, the 30 users and a central site incorporating a server of the system have direct or routed connectivity to all parties as shown in Figure 1. The network can be any existing electronic network and is in particular the Internet.

Other feasible networks include, but not limited to, LAN, wireless LAN, WAN, cable network, mobile/cellular network, proprietary electronic network and telephone network.

5

Given that the business operator and the system operator may not be the same entity or within the same functional body, there is no need for the business operator to be connected to the network.

10

Based on the provider database supplied by the business operator, the system operator sets up a list of providers with their IDs and IP network addresses. The providers will be given a specific short program code (or html tag) to insert into each page (or file) chosen to be included in the payment system. Depending on the providers' server type, a server add-on program may be required upon initial set up.

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According to the user database from the business operator, the system operator sets up particulars of the users and then waits for the users to log in and register. The users are required to install a client program on their computers, or any other network access devices such as PDAs or mobile phones. After installation, when the user's computer is online, the client program will register with the system central site for login ID, password, user ID and so on. A cookie is also written on his/her computer. This program is needed for accessing the providers' sites from the user's computer, and it also tracks the user's usage for payment processing. Each computer may register more than one user.

25

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Physically, the system comprises the system central site on the network, client programs installed on the user computers and short program codes to be inserted to the pages on the providers' sites. In terms of function, the system comprises two main parts, namely access control and payment processing.

### Access Control

Once the set up is completed, users have two ways to gain access to the providers' products and services.

#### Method 1: Access from the Central Site

The users log on to the central site and access contents and services of the providers as shown in Figure 2. As all the transmissions are channeled through the central site, the usage by the users can be recorded on the central site. Collectively, Figure 2A shows how users gain access to the providers' sites via the central site. This method is relatively slower in connection and requires login procedures, and the users may be exposed to advertisements from central site.

#### Method 2: Access from the User's Computer

Each user accesses the providers' sites with the aid from the client program installed on his/her computer. When the user gets online, the program will transmit the account information (or cookie) from the computer to the central site as shown in Figure 3. The central site will then verify the user's information and enlist the user's current IP address on the server for authorization

purpose as shown in Figure 7. This is similar to how instant mess ngers, such as icq, yahoo, msn, keep a list of online users. When the user requests to access a provider's site, the server of the provider will check  
5 the IP address of the requesting user against the list of IP addresses kept on the central site. Access will be granted upon successful verification. Figure 3A is a collective view showing Method 2, which is different from Method 1.

10 Method 2 may have some variations in the actual implementation, in that in addition to the steps described above there are at least two possible alternative ways to make access efficient.

15 As the first alternative, the user issues a request for files to the central site instead of to the provider, and then the central site authenticates and passes the request on to the provider, and finally the provider  
20 serves the request (sending files) to the user direct. This can be visualized from Figure 3, with the relevant data flowing in the anti-clockwise direction, i.e. initially from the user to the central site and then from the central site to the provider and finally from the  
25 provider back to the user.

As the second alternative, the user issues a request for files directly to the provider and informs the central site at the same time. In response, the central site  
30 authenticates and confirms to the provider, who then in turn serves the request (sending files) to the user direct. As can be visualized from Figure 3, in comparison with the first alternative, the data flow between the

user and the provider is bi-directional, i.e. initially from the user to the provider for request and finally from the provider back to the user for file transfer.

- 5 In both alternatives, the important step lies in the direct provision of products and/or services from the provider to the user.

The ease and simplicity of user authentication and, more  
10 importantly, the direct provision of products and services from the providers to the users bypassing the system operator are advantageous. This will relieve the system server from processing the load that can be shared by and should more suitably be handled directly by the  
15 two parties involved.

#### Payment Processing

The client program also records the usage data on the  
20 user's computer. As users may access the products and services from home and public terminals, they are likely to use both Method 1 and Method 2 at different times for access as desired. At the end of each billing period, usage data from both sides will be consolidated when each  
25 user's computer goes online. Payment distribution to the providers from each user will be generated, and the system will integrate all sub-payments to produce a total payment table for use by the business operator.

- 30 To cater for the large number of providers and users, the users' computers will be required to meter usage and handle some payment processing work. The payment processing are divided into two parts, namely calculation and distribution.

### Payment Calculation

To fairly split or divide the user subscription fees  
5 among the various providers, the measurement of usage has  
to be made as accurate as possible.

Given that usage through an electronic network is not  
limited to merely typical content provision, a general  
10 usage formula is defined to cover most of the existing  
forms of electronic products and services available on  
the Internet.

Examples of the products and services available online  
15 are program files, news in different formats, audio,  
videos, weather, web-casts, real-time radio casts,  
calendars, e-cards, comics, games, chats (text, voice and  
video), albums, event organizations, auctions, e-mails,  
file storage, music, animations, dictionaries, spell  
20 checking, translations, faxes, messaging, communications,  
message boards, classifieds, financial quotes and  
functions, business and personal matching, and searches,  
etc.

25 The value of products and services provided by a provider  
can be measured or priced according to the size of files  
accessed, the number of files accessed, the time spent on  
the provider's site, the duration of download processes  
and the number of download transmissions, and any other  
30 elements (parameters or criteria) as required.

When usage is measured for text based products such as  
news, a reasonable usage element is the file size.  
Therefore, if only file size is considered for pricing

the content, the fair share of payment that a content provider obtains from a particular user is:

$$P_i = \left( \frac{x_i}{X} \right) f_0 \quad \text{where} \quad \sum_{\text{all } i} \frac{x_i}{X} = 1$$

5

$f_0$  = Fixed fee paid by user

$P_i$  = Payment to be received by provider i

$x_i$  = Size of text files accessed by user from provider i

10  $X$  = Size of text files accessed by user from all providers.

When usage is measured for a combination of products and services, a reasonable calculation for the share of payment that a provider obtains from a particular user is calculated as:

$$P_i = \left( \frac{x_{i,1}}{X_1} + \frac{x_{i,2}}{X_2} + \frac{x_{i,3}}{X_3} + \frac{x_{i,4}}{X_4} + \frac{x_{i,5}}{X_5} \right) \frac{f_0}{5} \quad \text{where} \quad \sum_{\text{all } i} \frac{x_{i,j}}{X_j} = 1$$

20  $x_{i,1}$  and  $X_1$  = size of files accessed from provider i and all providers respectively

$x_{i,2}$  and  $X_2$  = number of files accessed from provider i and all providers respectively

25  $x_{i,3}$  and  $X_3$  = time spent on sites of provider i and all providers respectively

$x_{i,4}$  and  $X_4$  = duration of download processes from provider i and all providers respectively

30  $x_{i,5}$  and  $X_5$  = number of download transmissions from provider i and all providers respectively.

A fair payment distribution should not be confined to

usage measurement based on the five elements referred to above. Reasonable pricing of products and services may be measured by an arbitrary number of usage elements, and should be dependent on application.

5 To fairly distribute the subscription fees paid by the users, different usage elements may be of different levels of importance. For example, a payment scheme for web radio would consider the time spent to be the most appropriate usage element for measurement. On the other  
10 hand, a payment scheme for news would take the size of text files as the most appropriate usage element for measurement.

15 Accordingly, each usage element should be weighted for different payment schemes, and ultimate general formula is:

$$P_i = \left( w_1 \frac{X_{i,1}}{X_1} + w_2 \frac{X_{i,2}}{X_2} + \dots + w_j \frac{X_{i,j}}{X_j} \right) f_0$$

20

$$\text{Where } \sum_{allj} w_j = 1, \quad \sum_{alli} \frac{X_{i,j}}{X_j} = 1.$$

Assigning  $w_1$  as "1" and the other weights to "0" will reduce the general formula to the first equation.

25

Each  $w_1$  may be predefined upon subscription or be defined by a user later.

Additional or alternative elements or criteria according to preferences of the users, such as ranking, scoring and rejection choice, etc. may be instrumented to adjust the  
30 distribution of their subscriptions to the providers.



This will allow the users (customers) to take an active part in determining how their fees are spent.

As an add-on module to the client program, the users may  
5 choose to use a ranking scheme to distribute the  
subscription fees instead of calculating the distribution  
based on relative usage. According to the scheme, each  
user may choose to rank his/her top 10 provider sites,  
and the fee distribution may be preset as shown in the  
10 table of Figure 12. Some users may like to get involved  
in determining the quality of the providers' sites by  
assigning a score to adjust the payment. For example, a  
user might like to allocate a score to each of the  
websites for subscription distribution in favour of  
15 his/her preference. If a user is to assign a score from 1  
to 10, an adjusted payment distribution may look as shown  
in the table of Figure 13. In this example, payment to  
the sites with higher scores will be boosted by the user  
at the expense of the other sites. Some payment conscious  
20 users might want to prevent some unwelcome websites, for  
example by reason of offensive materials, intensive  
advertisements, slow response, misleading or defamatory  
contents or inaccurate results etc., from receiving their  
money. A choice may be given to them to reject a few  
25 websites from obtaining payment. This option will cause  
re-adjustment of the fee distribution to the other  
providers. There may be other more complicated schemes  
like voting from users, or scoring from professional  
reviewers, which introduce external elements (not from  
30 user) into the adjustment factors.

#### Payment Distribution

When the users access the provider sites using Method 1, all predefined usage elements are being logged and aggregated on the central site. It should be noted that the usage elements like file sizes, and not the actual files, are being recorded. The usage elements are recorded as shown in the usage table of Figure 8. When the users access the provider sites using Method 2, the same set of usage elements as in Figure 8 are being logged and aggregated on the users' computers.

At the end of the first billing period 1, the client programs on the users' computers will request usage data (Figure 8) from the system central site. Consolidated with its own usage table, each program will generate a usage report over that period for the respective user, which will include usage summary and calculated payment distribution as shown in Figure 9.

Since the central site will provide the resources to record usage when the user accesses the provider sites using Method 1, the system operator may charge the user for a reasonable value(s) against the appropriate usage element(s) in the usage table of Figure 8. More specifically, the system operator becomes one of the service providers and will charge a service fee by posting a usage value in the usage table (Figure 8), which will eventually become a payment value in the distribution table (Figure 10).

The payment system preferably presets a maximum number of providers per payment distribution (e.g. 50) in the distribution table of Figure 10 in descending order of their shares in percentage, and/or a minimum cut-off

share percentage (e.g. 1%), thereby neglecting those providers of smallest shares to eliminate insignificant accesses or payment distribution. This helps to reduce the transmission and processing loads.

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After the user's computer finishes generating the usage report, a much simplified (payment) distribution table as shown in Figure 10 is extracted and transmitted to the system central site.

10

Different client programs will send their individual distribution tables to the central site at different times throughout the next billing period 2. The central site will integrate all the distribution tables received up to the end of the second period 2. The central site will subsequently produce a completely integrated payment table as shown in Figure 11 for all the providers. This table contains the total amount (in %) that each provider should receive for the preceding first period 1, and will be delivered to the business operator for payment arrangement to the providers. The timeline of the payment process is shown in Figure 4.

The metering of usage performed on the users' side is preferred. The calculation of total usage and the formation of distribution tables accomplished on the users' side are also preferred. With all such tasks assigned to the users' computers, the load of the central site server can be minimized. The central site server is mainly responsible for integrating the distribution tables received from the users, whereby its system requirements can be reduced or it can efficiently deal with a very large number of providers and users on an

enormous scale. These advantages are enhanced by reason of the transmission and processing loads for consolidating and integrating usage and payment distribution being spread over the whole of the next  
5 billing period 2, or any predetermined interval following the last billing period.

The direct provision of products/services from the providers to the users (using Method 2) and usage  
10 metering at the users' side is advantageous to save system resources, because the users' accesses to the providers' sites are continuous and throughout the whole billing period. However, given that usage consolidation, calculation and integration only need to be performed  
15 once every billing period per user, it is possible to implement a system where usage consolidations and calculations, etc. are processed by the system server instead of the users' computers.

20 The central site will keep a copy of the distribution table for each user. If a user does not log onto the network for the whole of period 2, the usage data recorded on the central site (accessed by Method 1) will be used to calculate the payment distribution. If there  
25 is no usage data on the central site, the previous distribution table will be used to integrate into the current payment table. In doing so, all the providers participating the payment scheme will be paid to the total amount of all the user subscription fees received  
30 for the last billing period promptly.

The distribution table contains the percentage of subscription fee to be paid to the providers. This is to

ensure easier processing should the business operator need to change subscription fee.

As schools, libraries, net cafes, corporations and  
5 governments would access products and services at a much  
higher volume, a relatively higher group subscription  
rate (fee) may be set for high volume users. To  
differentiate individual users from group users, there  
should be a practical usage limit for individual  
10 accounts. The usage limit should be several times higher  
than an average user's usage. This limit should be set  
and enforced by the business operator. The system  
operator will receive the distribution tables with total  
usage volume. If the limit is exceeded, the system  
15 operator will inform the business operator. It is the  
business operator's decision to deactivate the user or to  
persuade the user to switch to a group scheme. The group  
scheme is preferably implemented separately with a  
separate central site and settings, for scalability and  
20 for providers to choose what subscription rate (or  
scheme) to participate.

Product and service providers may participate in the  
subject payment scheme and at the same time implement  
25 their own subscription or access methods on the same  
network. Such users and providers participating in other  
schemes are not excluded from the scope of this patent.  
There may be many business and system operators on the  
same network, with each system operating independently of  
30 the other.

The invention has been given by way of example only, and  
various other modifications of and/or alterations to the

described embodiment may be made by persons skilled in the art without departing from the scope of the invention as specified in the appended claims.